Course Syllabus: Math 250 Spring 2009
Intuitive Geometry
1:00 - 1:50PM
MF / HERTZ 120 – TR / BOUILLON 103


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| Professor: | Dr. Jane Whitmire |
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| Phone - Office: | 509-963-2268 Bouillon 123 |
| Office Hours: | M 10-11AM, W 10-11AM, R 2-2:50PM |
| Textbook: | A Problem Solving Approach to Mathematics for Elementary School Teachers, 10th Edition |
| Authors: | Billstein, Libeskink, Lott |
| Prerequisites: | Math 164 |


## Course Description

The purpose of this course is to enable certification candidates to develop a solid knowledge of mathematics and its applications, to learn general pedagogical theories and practices relating to mathematics education, and to acquire an attitude, which seeks the high standards of the profession. The curriculum is based on the idea that active involvement enhances students' learning. Thus, the use of manipulatives is one way for linking experience with students' mathematical understanding. Certification candidates will learn to help students move from the concrete to the abstract levels of mathematics by incorporating, manipulative activities and, when appropriate, pictorial, symbolic, and verbal representations.

## Electronic Equipment

Unless otherwise stated, students will not be allowed to operate any type of electronic equipment in class such as cellular phones, calculators, or beepers. Cellular phones will not be used for calculating purposes especially during examinations.

## Supplies

Students are responsible their own writing materials such as pencil, colored pens, protractor, compass, highlighter, stapler, glue, ruler and paper (plain, grid, and lined). Maintain your supplies, notes, homework, and examinations organized in a portfolio.

Learning Outcomes

Students who successfully complete this course should demonstrate the following learning outcomes.

1. Use the language of mathematics to express mathematical ideas precisely.
2. Interconnect mathematical ideas and apply them to solve problems.
3. Demonstrate appropriate computational skills through a variety of activities that include concrete, representation, and abstract levels of instruction.
4. Determine the computation to be used in order to solve a problem.
5. Perform accurate computations involving rational numbers as fractions, decimals and percents, and real numbers.
6. Evaluate an answer to determine its reasonableness.
7. Use exponential, scientific, and calculator notation to express numbers.
8. Use manipulatives to explore intuitively geometric concepts of two- and three-dimensional figures.
9. Use manipulative to explore basic properties of simple geometric figures, in particular, those that relate to measurement.
10. Recognize the attributes of length, volume, weight, area, and time.
11. Use appropriate tools to perform various measurements.
12. Draw geometric objects with specified properties such as side lengths and angle measures.
13. Convert units of measure using standard and nonstandard systems of measure.
14. Use manipulatives to recognize similarities and differences among objects.
15. Describe spatial relationships using coordinate geometry.
16. Perform constructions to emphasize the concepts of congruence and similarities.
17. Use geometric and algebraic procedures to solve linear equations and systems of equations.
18. Apply transformations and use symmetry to analyze mathematical situations.
19. Use visualization, spatial reasoning, and geometric modeling to solve problems.
20. Formulate questions about a characteristic shared by two populations or different characteristics within one population.
21. Design studies and collect data about a characteristic shared by two populations or different characteristics within one population.
22. Use appropriate graphical representations of data.
23. Find, use and interpret measures of center and spread.
24. Examine differences between two or more samples to make conjectures about the populations from which the samples were taken.
25. Use appropriate terminology to apply basic concepts of probability.
26. Compute probabilities for simple and compound events.
27. Describe complementary and mutually exclusive events.

Grading

Everyone is graded the same way. NO EXCEPTIONS. Letter grades A/A-/B+/B/B-/C+/C/C-/D+/D/D-/F are based on a strict 93-100/90-92.9/87-89.9/83-86.9/80-82.9/77-79.9/73-76.9/70-72.9/67-69.9/63-66.9/60-62.9/BELOW 60 cutoff. Grades are not rounded either up or down. The course grade can be calculated at any time using the following proportions:

$$\begin{aligned} Homework &\longrightarrow 30\% \\ Exams &\longrightarrow 30\% \\ Activities &\longrightarrow 10\% \\ Presentation &\longrightarrow 10\% \\ Final &\longrightarrow 20\% \end{aligned}$$

Homework:

Homework exercises should be written with attention to details, complete sentences, flow, and pictorial representations for manipulatives should be done neatly and accurately. Transitions from concrete to abstract should be included when applicable. No late homework will be accepted.

Exams:

Exam dates are Friday, April 17, 2009 and Friday, May 15, 2008. Exams are comprehensive and cover all material discussed in class since the previous exam. Completing the exam in the time allotted is part of the exam. Taking an exam is an important part of the course. Nevertheless, scheduling complications sometimes occur. An alternate procedure for taking an exam due to a scheduling complication must be arranged in advance. No make-up exams will be administered.

Activities:
In-class activities will include solving problems using manipulatives, classroom discussion, and practice exercises to reinforce mathematical skills.

Presentations:

Students will select a topic to make a classroom presentation. A grading rubric will focus on mathematical content, creativity, hands-on engagement of students, use of manipulative or visual stimulus, and written lesson plan.

Final Exam

The final MUST be taken to pass the course.The final is comprehensive, covers all material discussed in class, and is to be taken at the time scheduled by the University. Completing the final in the time allotted is part of the final. The final exam for Spring 2009 is Tuesday, June 9, 2009 from noon to 2 pm.

Intellectural Competencies

The following intellectual competencies will be emphasized in this course.

(a) Reading: Competency in reading is the ability to analyze and interpret a variety of printed materials. Students will have the opportunity to develop this skill through reading their mathematics textbook. Instructions for homework exercises, quizzes, and major exams call for a high level of reading and preparation.

(b) Critical Thinking: Critical thinking skills include problem solving, connecting mathematical concepts to real world applications or other mathematical concepts, identifying and describing patterns, and extending concepts to new situations. You will have the opportunity to develop these skills through classroom discourse, homework exercises and other activities. You will have the opportunity to demonstrate your ability to think critically by answering questions that focus on conceptual knowledge.

(c) Writing: Competency in writing is the ability to produce clear, correct, coherent prose adapted to purpose, occasion, and audience. You will have the opportunity to practice these skills by answering questions that focus on conceptual knowledge. Written assignments may include writing brief explanations on how to solve specific problems or compare and contrast ideas.

(d) Use of Technology: Computer literacy means the ability to use computer-based technology in communicating, solving problems, and acquiring information. Students will have the opportunity to develop these skills while engaging in activities involving computerized concept tutorials.

Academic Integrity

Cheating, plagiarism, and copying material that is copyrighted will not be tolerated. Disciplinary action will be taken for any of these wrong doings.

Special Needs Statement

As soon as possible, students with disabilities who wish to set up academic adjustments in this class should provide a copy of their "Confirmation of Eligibility for Academic Adjustments". Eligible students without this form should contact the Disability Support Services Office by visiting Bouillon 205, emailing dssrecept@cwu.edu, or calling the phone number 509-963-2171.